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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,881	06/26/2001	Markus Dillinger	12758-003001	8759

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EXAMINER	
MEW, KEVIN D	

ART UNIT	PAPER NUMBER
2664	8

DATE MAILED: 07/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/744,881	DILLINGER, MARKUS	
	Examiner	Art Unit	
	Kevin Mew	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-11, 14-15* is/are rejected.

7)☒ Claim(s) *3,12 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1/30/2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1-2, 4-11, 14-15** are rejected under 35 U.S.C. 102(b) as being anticipated by the admitted prior art, Gilhousen (WO 95/03652).

Regarding claim 1, Gilhousen discloses a method of allocating channels in a communications system having code division multiple access (CDMA) subscriber separation (**CDMA cellular telephone system for allocating a set of orthogonal code sequences of variable length among user channels to reduce mutual interference**, see lines 1-9, page 4), comprising:

deriving CDMA codes for allocating communication channels for data links (**orthogonal Walsh functions of varying length are assigned to user channels on the cell-to-mobile link and each channel is assigned a unique orthogonal Walsh sequence**, see lines 31-33, page 11) in the communication system using a tree structure (**using a tree of Walsh sequences**, see lines 27-29, page 13 and Fig. 2);

representing nodes that join a plurality of branches of the tree structure using sequence of symbols (**such a tree of Walsh sequences may be envisioned as a set of interconnected nodes**, see Fig. 2), sequences of symbols for two of the nodes differing at a position that corresponds to a distance between the two nodes (see Fig. 2) and a node that joins the two nodes to the tree structure (**a set of interconnected nodes each having**

two branches, where all of the nodes may be traced back to the root node, see lines 32-34, page 13 and Fig. 2);

allocating a CDMA code to a data link by selecting free nodes that are not directly connected in the tree structure to a node that is occupied (**assignment to a mobile channel of a Walsh sequence corresponding to a particular node would preclude assignment of Walsh sequences associated with nodes connected, either above or below the given node**, see lines 11-16, page 14);

determining a position in the sequence of symbols that corresponds to a difference from an occupied node (**node that has the sequence of symbols "00" is different in position in the tree from the nodes that has the sequence of symbols of "0000"**, see Fig. 2) and a sum of positions for occupied nodes (**determining the value of Y, which is the length of the Walsh code and also interpreted as the sum of the number of positions in the code**, see lines), starting with a root of the tree structure (see Fig. 2); and

allocating a channel in the data link with a CDMA code (**user channels are assigned codes of varying length based on the data rate of each channel**, see lines 16-17, page 13) that corresponds to a node with a predefined sum (**a node with sequences "00" has a length sum of 2 while a node with sequences "0000" has a length sum of 4**, see lines 37-38, page 14, Table I and Fig. 2).

Regarding claim 2, Gilhousen discloses the method as claimed in claim 1, wherein, in the tree structure, a distance between a node and the root corresponds to an increase in a spread factor of the CDMA code (more codes can be allocated on the same

frequency channel as the distance between a node and the root increases, see Fig. 2) and to a reduction in a data rate for the link (Walsh sequences of the longest available length are assigned to the channels having the lowest data rate, see lines 44-45, page 15 and lines 1-5, page 16).

Regarding claim 4, Gilhousen discloses the method as claimed in claim 2, wherein the predefined sum for a link (the length sum of the code, which is the Y value, see Table I) to a data rate which does not vary by more than a predetermined amount (nodes with codes 0/16 through 15/16 could be assigned to the lowest data rate while nodes with codes 0/8 to 7/8 would be allocated to those channels with twice the lowest data rate, see lines 2-5, page 16) is a greatest of the sums of positions of occupied nodes (sum of positions for codes 0/16 to 15/16 is 16 while sum of positions for codes 0/8 to 7/8 is 8, see Table I).

Regarding claim 5, Gilhousen discloses the method as claimed in claim 4, further comprising:

defining an increased possibility for a data rate of the link (data rate for channels increases as the length of Walsh sequences decreases); and

selecting a node with a difference from an occupied node at a specific position, the specific position corresponding to the increased possibility (see lines 44-45, page 15 and 1-5, page 16).

Regarding claim 6, Gilhousen discloses the method as claimed in claim 5, wherein the increased possibility is taken into account when selecting the node (see lines 44-45, page 15 and lines 1-5, page 16).

Regarding claim 7, Gilhousen discloses the method as claimed in claim 2, wherein a plurality of channels with different CDMA codes are allocated, a desired data rate resulting from a totality of individual data rates of the CDMA codes (see lines 44-45, page 15 and lines 1-5, page 16).

Regarding claim 8, Gilhousen discloses the method as claimed in claim 1, wherein the symbols are digital values (see digital values of each node in the tree, Fig. 2), and from each node a branch branches off in a direction of the root (see root node with code "0" in the tree and other nodes that branch off from the root node, Fig. 2) and two branches branch off in an opposite direction (see Fig. 2).

Regarding claim 9, Gilhousen discloses the method claimed in claim 8, wherein starting from the root of the tree structure (see root node with code "0" in the tree, Fig. 2), two nodes of outgoing branches of the tree structure are mapped using an additional "0" or "1" in the sequence of symbols (see nodes with codes "00" and "01" in Fig. 2).

Regarding claim 10, Gilhousen discloses the method as claimed in claim 1, wherein the CDMA codes are orthogonal codes with a variable spread factor (orthogonal Walsh functions of varying length, see lines 30-34, page 11).

Regarding claim 11, Gilhousen discloses the method as claimed in claim 1, wherein allocating a channel for a downward direction of a radio interface is performed in a broadband radio communications system (each user channel on the cell-to-mobile link within the CDMA communication system is assigned according to a unique orthogonal Walsh sequence, see lines 27-34, page 11 and Fig. 1).

Regarding claim 14, Gilhousen discloses a device for carrying out the method as claimed in claim 1 for a communications system with CDMA subscriber separation, the device (Walsh generator, see 254i, Fig. 5) comprising:

a storage device for storing the tree structure, the occupied nodes and the CDMA codes (see elements 354, Fig. 6); and

a processing device (control processor) for selecting a non-occupied node with a CDMA code (for selecting a Walsh function based on the data rate, see Fig. 5) and for allocating a channel with the CDMA code to a link (voice channel, see Fig. 5).

Regarding claim 15, Gilhousen discloses a method of allocating channels in a communications system in which code division multiple access (CDMA) codes are used to define channels (**orthogonal Walsh functions of varying length are assigned to user channels on the cell-to-mobile link and each channel is assigned an unique orthogonal Walsh sequence**, see lines 31-34, page 11) between a transmitter and a receiver (**cell-to-mobile link**), the method comprising:

deriving a new CDMA code for a channel from other CDMA codes for other channels (**Walsh function matrices of higher order are derived from lower order Walsh matrices**, see lines 24-39, page 13 and lines 1-4, page 14), the new CDMA code being derived based a tree structure (**a tree of Walsh sequences**, see lines 28-34, page 13) that contains symbols that define the new CDMA code (**Walsh sequence contains symbols of "0" and "1"**, see Table I and Fig. 2).

Allowable Subject Matter

2. Claims 3, 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 3, the method as claimed in claim 1, wherein the predefined sum is a smallest of the sums of positions of occupied nodes.

In claim 12, the method as claimed in claim 1, wherein at least one of a desired data rate and increased possibility for a data rate of the link is derived from an identifier of a mobile station.

In claim 13, the method as claimed in claim 1, wherein at least one of a desired data rate and increased possibility for a data rate of the link is derived from a signaled request of a mobile station.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure with respect to method and device for allocating channels in a communication system with CDMA subscriber separation.

US Patent 6,163,524 to Magnusson et al.

US Patent 5,751,761 to Gilhousen et al.

US Patent 5,793,759 to Rakib et al.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 703-305-5300. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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